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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,925	07/28/2003	Huo-Lu Tsai	018150.0279	3743

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EXAMINER

BECK, ALEXANDER S

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,925

Applicant(s)

TSAI, HUO-LU

Examiner

Alexander S. Beck

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: IDS filed 5/21/04.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed on 05/21/2004 has been acknowledged and considered by the Examiner. An initialed copy of the information disclosure statement is included in this correspondence.

Claim Objections

2. **Claim 4** is objected to because of the following informalities: There is insufficient antecedent basis for the limitation "said substrate" in the claim (page 18, line 12). Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roehm et al. (US 5,781,178 A, hereinafter "Roehm") in view of Yoshikawa et al. (US 5,815,139 A, hereinafter "Yoshikawa").**

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As to independent **Claims 1 and 4**, Roehm teaches/suggests a pointing device and method for controlling movement of a cursor on a display screen in response to an external force applied by a user, said pointing device comprising:

a plurality of switch contacts **73-75** including a set of directional contacts **84-99** that are electrically isolated from each other and that respectively have an associated direction, and a common contact unit **73** that is electrically isolated from the direction contacts (*Roehm: col. 3, lines 49-58*);

a bridging contact **68** responsive to the external force applied by the user for bridging together at least one of said direction contacts with said common contact unit in accordance with magnitude and direction of the external force (*Roehm: col. 4, lines 59-65*);

a processing unit **45** connected electrically to said switch contacts on a substrate **70**,
said processing unit

detecting connected and disconnected states of said direction contacts with said common contact unit (*Roehm: col. 3, lines 7-12; col. 5, lines 7-21*),

determining a net X vector component and a net Y vector component in accordance with the connected and disconnected states of said direction contacts as detected by said processing unit (*Roehm: col. 5, lines 35-38; col. 6, lines 20-52*),

obtaining x and y displacement values (e.g., displacement = speed/time) based on the number of said direction contacts that were detected by said processing unit to be in the connected state, the displacement increasing in magnitude with the number of said direction contacts detected to be in the connected state (*Roehm: col. 5, lines 35-38; col. 6, lines 20-52*),
and

generating cursor control signals based on the x and y displacement values for repositioning the cursor on the display screen (*Roehm: col. 6, lines 53-57*).

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Roehm does not disclose expressly selecting a scaling factor and multiplying the x and y vector components by said scaling factor.

Yoshikawa, analogous in art to the teachings of Roehm, teaches/suggests an input device that is capable of controlling the speed of cursor movement in accordance with the force exerted on a button (*Yoshikawa: col. 3, line 25-29*). Additionally, Yoshikawa teaches/suggests selecting a scaling factor based on a force exerted on a button (i.e., resistance detected), the scaling factor increasing in magnitude with the force exerted on the button (*Yoshikawa: col. 3, line 65 – col. 4, line 14; col. 10, lines 13-30*), multiplying each of a net X vector component and a net Y vector component by the scaling factor to obtain x and y displacement values, respectively (*Yoshikawa: col. 4, lines 5-17; col. 10, lines 20-24*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Roehm such that a scaling factor was selected based on a force exerted on a button, as taught/suggested by Yoshikawa, thus resulting the scaling factor increasing in magnitude with number of direction contacts detected to be in the connected state (i.e., force exerted).

The suggestion/motivation for doing so would have been to change cursor displacement in accordance with a force exerted on a button even when the “tilt” of the button remains unchanged (*Yoshikawa: col. 3, line 65 – col. 4, line 4*).

As to **Claim 2**, Roehm teaches/suggests wherein the pointing device is provided with eight of the direction contacts **84-99** that are angularly space apart from each other (*Roehm: col. 4, lines 12-15*).

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As to **Claim 5**, Roehm teaches/suggests a substrate **70** formed with said switch contacts **73-75**, and a press button **60** adapted for receiving the external force applied by the user, said press button being disposed adjacent to said substrate and being provided with said bridging contact **68** (*Roehm: col. 3, lines 35-48*).

As to **Claim 3**, note the above discussion of Roehm and Yoshikawa with respect to independent Claim 1.

Neither Roehm nor Yoshikawa disclose expressly wherein the scaling factor is equal to 1 when the number of direction contacts detected to be in the connected state ranges from 1 to 3, the scaling factor equal to 2 when the connected state is 4, the scaling factor equal to 3 when the connected state is 5, and the scaling factor equal to 4 when the connected state is 6.

Roehm teaches/suggests a scaling factor equal to 1 when a force of small magnitude is applied, a scaling factor equal to 2 when a small/medium force is applied, a scaling factor equal to 3 when a medium/large force is applied, and a scaling factor equal to 4 when a large force is applied (*Yoshikawa: col. 7, lines 49-51; TABLE 1*). As discussed in the above paragraphs regarding Claim 1, a smaller force is equal to a lower number of direction contacts detected to be in the connected state and a larger force is equal to a greater number of direction contacts detected to be in the connected state.

It has been held by the U.S. Supreme Court that a difference in degree, and not in kind, is not a patentable difference over the prior art. *American Road-Mach Co v. Pennock & Sharp Co*, 164 U.S. 26 (1896). The limitations of Claim 3 are different in degree (i.e., scaling factor of 1 in the event of 1-3 direction contact connections, etc.) with respect to the teachings of Roehm and Yoshikawa, but not in kind (i.e., selecting a scaling factor based on the number of direction contact connections detected).

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At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of Roehm and Yoshikawa such that a scaling factor of 1 was selected when the number of direction contacts detected to be in the connected state ranges from 1 to 3, the scaling factor equal to 2 when the connected state is 4, the scaling factor equal to 3 when the connected state is 5, and the scaling factor equal to 4 when the connected state is 6.

The suggestion/motivation for doing so would have been to provide a method for controlling movement of a cursor on a display screen that can conform to a user's preference regarding a sensitivity of the cursor movement.

As to **Claim 9**, Roehm teaches/suggests wherein said press button **60** is mounted operably on said substrate **70**, and said bridging contact **68** is a conductive carbon film that is spaced apart from the switch contacts **73-75** so as not to touch said switch contacts when the external force is not applied on said press button (*Roehm: col. 3, lines 39-44; col. 4, lines 61-65*).

5. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Roehm et al.* (US 5,781,178 A) and *Yoshikawa et al.* (US 5,815,139 A) as applied to Claims 1-5 and 9 above, and further in view of *Tickle* (US 5,670,988 A, hereinafter "Tickle").

As to **Claim 6**, Roehm teaches/suggests wherein said press button **60** defines a button axis **78** transverse to said substrate **70**, each of said direction contacts **84-99** including a trunk section that extends in a respective radial direction relative to the button axis (*Roehm: col. 3, lines 49-58; col. 4, lines 12-15*), said common contact unit **73** including a central ring portion co-

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axial with the button axis, and a plurality of angularly spaced apart trunk portions that extend radially from said ring portion, each of said trunk portions being disposed between a respective adjacent pair of said direction contacts (*Roehm: col. 3, lines 49-58; col. 3, line 66 – col. 4, line 2*).

Roehm does not disclose expressly branch portions on either the direction contacts or the common contact unit.

Tickle, analogous in art to the teachings Roehm and Yoshikawa, teaches/suggests a pointing device comprising a button to control cursor movement on a display screen (*Tickle: col. 1, lines 8-10*) comprising: direction contacts **42-45** with at least one branch section that extends in a circumferential direction relative to a button axis and that intersects a trunk section (*Tickle: col. 4, lines 10-19; FIG. 5*), and a common contact unit **41** including a plurality of branch portions, each of which extends in a circumferential direction relative to the button axis and intersects a trunk portion (*Tickle: col. 4, lines 10-19; FIG. 5*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of Roehm and Yoshikawa such that the trunks of the direction contacts and common contact unit comprised branches extending in a circumferential direction, as taught/suggested by Tickle.

The suggestion/motivation for doing so would have been increase a number of conductor traces on the substrate and create a smaller resistance and larger current carrying area for electrons (*Tickle: col. 4, lines 10-19*).

As to **Claims 7 and 8**, all of the claim limitations have already been discussed and met by references Roehm and Yoshikawa, as detailed in the above paragraphs regarding Claims 2 and 3.

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Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bates (US 5,172,101 A): see FIG. 6

Lee (US 4,488,017): see FIGS. 4,10


Yeh et al. (US 6,282,798 B1): see col. 1, lines 25-34

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Alexander S. Beck** whose telephone number is **(571) 272-7765**. The examiner can normally be reached on M-F, 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Sumati Lefkowitz** can be reached on **(571) 272-3638**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

asb
12/6/05



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